IN THE CLAIMS:

Please amend claims 49-114 and 119-178 as follows.

1-48. (previously withdrawn)

49. (currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

forming an amorphous semiconductor film comprising silicon as a main component over an insulating surface;

adding a catalytic element for promoting crystallization to the amorphous semiconductor film,

conducting a first heat treatment after ~~said~~ the adding of ~~said~~ the catalytic element, to form a crystalline semiconductor film;

forming a barrier layer over the crystalline semiconductor film;

forming a semiconductor film containing a rare gas element in a concentration of $1 \times 10^{19}/cm^3$ to $1 \times 10^{22}/cm^3$ over the barrier layer;

moving the catalytic element to the semiconductor film containing the rare gas element by a second heat treatment; and

removing the semiconductor film containing the rare gas element.

50. (currently amended) ~~A~~ The method according to claim 49, wherein the barrier layer is a chemical oxide film formed by ozone water.

51. (currently amended) ~~A~~ The method according to claim 49, wherein the barrier layer is formed by oxidizing a surface of the amorphous semiconductor film by a plasma treatment.

52. (currently amended) ~~A~~ The method according to claim 49, wherein the barrier layer is formed by irradiating UV-rays in an atmosphere containing oxygen to generate ozone, thereby oxidizing a surface of the amorphous semiconductor film.

53. (currently amended) ~~A~~ The method according to claim 49, wherein the barrier layer is a porous film formed with a film thickness of 1 to 10 nm.

54. (currently amended) ~~A~~ The method according to claim 49, wherein the rare gas element is at least one ~~kind or a plurality of kinds of elements~~ element selected from the group consisting of He, Ne, Ar, Kr, and Xe.

55. (currently amended) ~~A~~ The method according to claim 49, wherein the first heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected

from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

56. (currently amended) ~~A~~ The method according to claim 49, wherein the first heat treatment is conducted by using an electrothermal furnace.

57. (currently amended) ~~A~~ The method according to claim 49, wherein the second heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

58. (currently amended) ~~A~~ The method according to claim 49, wherein the second heat treatment is conducted by using an electrothermal furnace.

59. (currently amended) ~~A~~ The method according to claim 49, wherein the catalytic element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

60. (currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

forming an amorphous semiconductor film comprising silicon as a main component over an insulating surface;

adding a catalytic element for promoting crystallization to the amorphous semiconductor film to form a crystalline semiconductor film by a first heat treatment;

irradiating the crystalline semiconductor film with a laser light;

forming a barrier layer over the crystalline semiconductor film irradiated with the laser light;

forming a semiconductor film containing a rare gas element in a concentration of $1 \times 10^{19}/cm^3$ to $1 \times 10^{22}/cm^3$ over the barrier layer;

moving the catalytic element to the semiconductor film containing the rare gas element by a second heat treatment; and

removing the semiconductor film containing the rare gas element.

61. (currently amended) ~~A~~ The method according to claim 60, wherein the barrier layer is a chemical oxide film formed by ozone water.

62. (currently amended) ~~A~~ The method according to claim 60, wherein the barrier layer is formed by oxidizing a surface of the amorphous semiconductor film by a plasma treatment.

63. (currently amended) ~~A~~ The method according to claim 60, wherein the barrier layer is formed by irradiating UV-rays in an atmosphere containing oxygen to generate ozone, thereby oxidizing a surface of the amorphous semiconductor film.

64. (currently amended) ~~A~~ The method according to claim 60, wherein the barrier layer is a porous film formed with a film thickness of 1 to 10 nm.

65. (currently amended) ~~A~~ The method according to claim 60, wherein the rare gas element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of He, Ne, Ar, Kr, and Xe.

66. (currently amended) ~~A~~ The method according to claim 60, wherein the first heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

67. (currently amended) ~~A~~ The method according to claim 60, wherein the first heat treatment is conducted by using an electrothermal furnace.

68. (currently amended) ~~A~~ The method according to claim 60, wherein the second heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

69. (currently amended) ~~A~~ The method according to claim 60, wherein the second heat treatment is conducted by using an electrothermal furnace.

70. (currently amended) ~~A~~ The method according to claim 60, wherein the catalytic element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

71. (currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

forming an amorphous semiconductor film comprising silicon as a main component over an insulating surface;

adding a catalytic element for promoting crystallization to the amorphous semiconductor film to form a crystalline semiconductor film by a first heat treatment;

forming a barrier layer over the crystalline semiconductor film;

forming a semiconductor film containing a rare gas element in a concentration of $1 \times 10^{19}/cm^3$ to $1 \times 10^{22}/cm^3$ over the barrier layer;

moving the catalytic element to the semiconductor film containing the rare gas element by a second heat treatment;

removing the semiconductor film containing the rare gas element; and

irradiating the crystalline semiconductor film with a laser light after removing the semiconductor film containing the rare gas element.

72. (currently amended) ~~A~~ The method according to claim 71, wherein the barrier layer is a chemical oxide film formed by ozone water.

73. (currently amended) ~~A~~ The method according to claim 71, wherein the barrier layer is formed by oxidizing a surface of the amorphous semiconductor film by a plasma treatment.

74. (currently amended) ~~A~~ The method according to claim 71, wherein the barrier layer is formed by irradiating UV-rays in an atmosphere containing oxygen to generate ozone, thereby oxidizing a surface of the amorphous semiconductor film.

75. (currently amended) ~~A~~ The method according to claim 71, wherein the barrier layer is a porous film formed with a film thickness of 1 to 10 nm.

76. (currently amended) ~~A~~ The method according to claim 71, wherein the rare gas element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of He, Ne, Ar, Kr, and Xe.

77. (currently amended) ~~A~~ The method according to claim 71, wherein the first heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

78. (currently amended) ~~A~~ The method according to claim 71, wherein the first heat treatment is conducted by using an electrothermal furnace.

79. (currently amended) ~~A~~ The method according to claim 71, wherein the second heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

80. (currently amended) ~~A~~ The method according to claim 71, wherein the second heat treatment is conducted by using an electrothermal furnace.

81. (currently amended) ~~A~~ The method according to claim 71, wherein the catalytic element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

82. (original) A method of manufacturing a semiconductor device, comprising the steps of:

forming an amorphous semiconductor film comprising silicon as a main component over an insulating surface;

adding a catalytic element for promoting crystallization to the amorphous semiconductor film;

forming a barrier layer over the amorphous semiconductor film;

forming a semiconductor film containing a rare gas element in a concentration of $1 \times 10^{19}/cm^3$ to $1 \times 10^{22}/cm^3$ over the barrier layer;

crystallizing the amorphous semiconductor film by a heat treatment to form a crystalline semiconductor film and moving the catalytic element to the semiconductor film containing the rare gas element;

removing the semiconductor film containing the rare gas element; and

irradiating the crystalline semiconductor film with laser light.

83. (currently amended) ~~A~~ The method according to claim 82, wherein the barrier layer is a chemical oxide film formed by ozone water.

84. (currently amended) ~~A~~ The method according to claim 82, wherein the barrier layer is formed by oxidizing a surface of the amorphous semiconductor film by a plasma treatment.

85. (currently amended) ~~A~~ The method according to claim 82, wherein the barrier layer is formed by irradiating UV-rays in an atmosphere containing oxygen to generate ozone, thereby oxidizing a surface of the amorphous semiconductor film.

86. (currently amended) ~~A~~ The method according to claim 82, wherein the barrier layer is a porous film formed with a film thickness of 1 to 10 nm.

87. (currently amended) ~~A~~ The method according to claim 82, wherein the rare gas element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of He, Ne, Ar, Kr, and Xe.

88. (currently amended) ~~A~~ The method according to claim 82, wherein the first heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

89. (currently amended) ~~A~~ The method according to claim 82, wherein the first heat treatment is conducted by using an electrothermal furnace.

90. (currently amended) ~~A~~ The method according to claim 82, wherein the second heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide

lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

91. (currently amended) ~~A~~ The method according to claim 82, wherein the second heat treatment is conducted by using an electrothermal furnace.

92. (currently amended) ~~A~~ The method according to claim 82, wherein the catalytic element is one kind or a plurality of kinds of elements selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

93. (original) A method of manufacturing a semiconductor device, comprising the steps of:

adding a catalytic element for promoting crystallization to an insulating surface;

forming an amorphous semiconductor film comprising silicon as a main component over the insulating surface;

forming a barrier layer over the amorphous semiconductor film;

forming a semiconductor film containing a rare gas element in a concentration of $1 \times 10^{19}/cm^3$ to $1 \times 10^{22}/cm^3$ over the amorphous semiconductor film;

crystallizing the amorphous semiconductor film by a heat treatment to form a crystalline semiconductor film and moving

the catalytic element to the semiconductor film containing the rare gas element;

removing the semiconductor film containing the rare gas element; and

irradiating the crystalline semiconductor film with laser light.

94. (currently amended) ~~A~~ The method according to claim 93, wherein the barrier layer is a chemical oxide film formed by ozone water.

95. (currently amended) ~~A~~ The method according to claim 93, wherein the barrier layer is formed by oxidizing a surface of the amorphous semiconductor film by a plasma treatment.

96. (currently amended) ~~A~~ The method according to claim 93, wherein the barrier layer is formed by irradiating UV-rays in an atmosphere containing oxygen to generate ozone, thereby oxidizing a surface of the amorphous semiconductor film.

97. (currently amended) ~~A~~ The method according to claim 93, wherein the barrier layer is a porous film formed with a film thickness of 1 to 10 nm.

98. (currently amended) ~~A~~ The method according to claim 93, wherein the rare gas element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of He, Ne, Ar, Kr, and Xe.

99. (currently amended) ~~A~~ The method according to claim 93, wherein the first heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

100. (currently amended) ~~A~~ The method according to claim 93, wherein the first heat treatment is conducted by using an electrothermal furnace.

101. (currently amended) ~~A~~ The method according to claim 93, wherein the second heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

102. (currently amended) ~~A~~ The method according to claim 93, wherein the second heat treatment is conducted by using an electrothermal furnace.

103. (currently amended) ~~A~~ The method according to claim 93, wherein the catalytic element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

104. (original) A method of manufacturing a semiconductor device, comprising the steps of:

adding a catalytic element for promoting crystallization to an insulating surface;

forming an amorphous semiconductor film comprising silicon as a main component over the insulating surface;

forming a barrier layer over the amorphous semiconductor film;

forming a semiconductor film containing a rare gas element in a concentration of $1 \times 10^{19}/cm^3$ to $1 \times 10^{22}/cm^3$ over the amorphous semiconductor film;

adding a rare gas element to the semiconductor film containing the rare gas element;

crystallizing the amorphous semiconductor film by a heat treatment to form a crystalline semiconductor film and moving

the catalytic element to the semiconductor film containing the rare gas element;

removing the semiconductor film containing the rare gas element; and

irradiating the crystalline semiconductor film with laser light.

105. (currently amended) ~~A~~ The method according to claim 104, wherein the barrier layer is a chemical oxide film formed by ozone water.

106. (currently amended) ~~A~~ The method according to claim 104, wherein the barrier layer is formed by oxidizing a surface of the amorphous semiconductor film by a plasma treatment.

107. (currently amended) ~~A~~ The method according to claim 104, wherein the barrier layer is formed by irradiating UV-rays in an atmosphere containing oxygen to generate ozone, thereby oxidizing a surface of the amorphous semiconductor film.

108. (currently amended) ~~A~~ The method according to claim 104, wherein the barrier layer is a porous film formed with a film thickness of 1 to 10 nm.

109. (currently amended) ~~A~~ The method according to claim 104, wherein the rare gas element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of He, Ne, Ar, Kr, and Xe.

110. (currently amended) ~~A~~ The method according to claim 104, wherein the first heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

111. (currently amended) ~~A~~ The method according to claim 104, wherein the first heat treatment is conducted by using an electrothermal furnace.

112. (currently amended) ~~A~~ The method according to claim 104, wherein the second heat treatment is conducted by radiation from at least one ~~kind or a plurality of kinds of lamps~~ selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high-pressure sodium lamp, and a high-pressure mercury lamp.

113. (currently amended) ~~A~~ The method according to claim 104, wherein the second heat treatment is conducted by using an electrothermal furnace.

114. (currently amended) ~~A~~ The method according to claim 104, wherein the catalytic element is at least one ~~kind or a plurality of kinds of elements~~ selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

115-118. (previously withdrawn)

119. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a personal computer.

120. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a video camera.

121. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a mobile computer.

122. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a goggle type display.

123. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a player using a record medium.

124. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a digital camera.

125. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a front type projector.

126. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a rear type projector.

127. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is a portable telephone.

128. (currently amended) ~~A~~ The method according to claim 49, wherein ~~said~~ the semiconductor device is an electronic book.

129. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a personal computer.

130. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a video camera.

131. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a mobile computer.

132. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a goggle type display.

133. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a player using a record medium.

134. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a digital camera.

135. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a front type projector.

136. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a rear type projector.

137. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is a portable telephone.

138. (currently amended) ~~A~~ The method according to claim 60, wherein ~~said~~ the semiconductor device is an electronic book.

139. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a personal computer.

140. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a video camera.

141. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a mobile computer.

142. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a goggle type display.

143. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a player using a record medium.

144. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a digital camera.

145. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a front type projector.

146. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a rear type projector.

147. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is a portable telephone.

148. (currently amended) ~~A~~ The method according to claim 71, wherein ~~said~~ the semiconductor device is an electronic book.

149. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a personal computer.

150. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a video camera.

151. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a mobile computer.

152. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a goggle type display.

153. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a player using a record medium.

154. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a digital camera.

155. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a front type projector.

156. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a rear type projector.

157. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is a portable telephone.

158. (currently amended) ~~A~~ The method according to claim 82, wherein ~~said~~ the semiconductor device is an electronic book.

159. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a personal computer.

160. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a video camera.

161. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a mobile computer.

162. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a goggle type display.

163. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a player using a record medium.

164. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a digital camera.

165. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a front type projector.

166. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a rear type projector.

167. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is a portable telephone.

168. (currently amended) ~~A~~ The method according to claim 93, wherein ~~said~~ the semiconductor device is an electronic book.

169. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a personal computer.

170. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a video camera.

171. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a mobile computer.

172. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a goggle type display.

173. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a player using a record medium.

174. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a digital camera.

175. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a front type projector.

176. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a rear type projector.

177. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is a portable telephone.

178. (currently amended) ~~A~~ The method according to claim 104, wherein ~~said~~ the semiconductor device is an electronic book.

179-198. (previously withdrawn)